

REMARKS

Claims 1-9 are all the claims pending in the application. The Examiner has indicated that claims 3 and 7 include patentable subject matter since these claims would be allowable if rewritten into independent form to include the limitations of their base and intervening claims. Claims 1, 2, 4, 6, 8, and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamazaki (JP 63-151855). Claim 10 has been added by this Amendment.

The Examiner states that Yamazaki discloses a coaxial flow of liquids comprising a supply of a sample liquid through tube 23 having a tip end (nozzle end of tube 23) of which is disposed at a center portion of flow of sheath liquid supplied through the sheath tube 24. The Examiner acknowledges however, that Yamazaki does not disclose a valve connected to tube 23 to control the supply of fluid therethrough. Rather, the Examiner considers it obvious that there should be some sort of controlling arrangement of flowing liquids/liquid on both the tube 23 and 24.

However, Applicants respectfully submit that Yamazaki does not disclose or suggest the features of the present invention. Claim 1 broadly recites:

*A fluid mixing apparatus which controls supply of a plurality of fluids to mix the fluids, comprising:
a valve connected to a nozzle to control supply of another fluid to the flow of one fluid;
and
said nozzle, a tip end of which is disposed at a center portion of flow of said one fluid.*

The present invention relates to a fluid mixing apparatus which mixes a fluid with another fluid flowing in the flow path such as pipe, tube, or the like. According to the present invention, a tip end nozzle is positioned at a center of a flow of one fluid, and another fluid is injected from the nozzle into the flow of the fluid, so that the two fluids are evenly mixed. Yamazaki fails to show mixture of the sample suspension 25 and the sheath liquid 26, or a tip end of the nozzle being positioned at a center portion of flow of the fluid. In particular, Yamazaki provides no disclosure that the end of tube 23 is disposed at a center of flow of the sheath liquid 26. Further, Yamazaki's Abstract states that the sample suspension 25 is "wrapped" with the sheath liquid 26. This wrapping of the sample suspension 25 would suggest precluding the one fluid being introduced at a center portion of flow of the second fluid. For example, in Yamazaki, the sample suspension 25 is not introduced at a center portion of flow of the sheath liquid 26 since the sheath liquid 26 "wraps" the suspension liquid 25. These arguments are equally applicable to claims 4 and 5. Accordingly, the claims are allowable at least for these reasons.

Claim 10

Claim 10 has been added to recite a feature wherein a flowing direction of the fluid supplied from the nozzle is set to have a predetermined angle with respect to the flow of the fluid. Claim 10 depends from claim 1 and, therefore, should be allowable at least by virtue of its dependency.

Drawings

Applicants thank the Examiner for approving the correction to Figure 2. Applicants are having formal drawings prepared to address the Examiner's other objections noted on page 2 of the Office Action and will file them separately in a Supplemental Amendment in the near future.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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